

What is claimed is:

1 1. An interconnectable module usable with high frequency
2 devices comprising:

3 a first package of micromachinable material for housing
4 an integrated circuit, said first package having at least one female
5 connection component;

6 a second package of micromachinable material for
7 housing an integrated circuit, said second package having at least one
8 male connection component;

9 wherein the male component of the second package is
10 configured to be able to slide into the female component of the
11 first package thereby coupling the first package to the second
12 package thus providing an efficient way to transmit signals for
13 high frequency devices.

1 2. The interconnectable module of Claim 1 wherein the
2 interconnected packages are surface mounted onto a circuit board.
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1 3. The interconnectable module of Claim 1 wherein metal
2 conductors are patterned on at least one side of the first package and
3 at least one side of the second package, whereby an electrical

4 connection is made between the patterned conductors of the first and
5 second packages when the first and second packages are coupled
6 together.

1 4. The interconnectable module of Claim 1 wherein the male
2 connection component of said second package is trapezoidal in shape
3 and the female connection component of said first package is shaped
4 as a dovetail like aperture, the slanted edges of said male component
5 and trapezoidal edges of said female component thus enable the first
6 package to be coupled to the second package.

1 5. The interconnectable module of Claim 1 wherein a spring,
2 located on an edge of the first package having the female component,
3 applies compressive force to the second package when the second
4 package having a male component is inserted into the female
5 component of the first package (the spring thereby creates a frictional
6 force and holds the two packages together)..

1 6. The interconnectable module of Claim 1 wherein the
2 second package has two male components, the first male component
3 having said electrical connection channels for carrying signals whereas

4 the second male component provides guide when the male component
5 slides into a female component.

1 7. The interconnectable module of Claim 1 wherein the
2 integrated circuit housed in the silicon package is a monolithic
3 microwave integrated circuit.

8. A micromachinable substrate comprising:
a first micromachined substrate for housing an integrated
circuit;

a second micromachined substrate bonded to said first
micromachined substrate wherein the second micromachine substrate
has an integral connector.

9. The micromachinable substrate of Claim 8 wherein the
connector is a female component.

10. The micromachinable substrate of Claim 8 wherein the
connector is a male component.

1 11. The micromachinable substrate of Claim 8 wherein the
2 integrated circuit is fully encapsulated by a second machinable
3 substrate.

1 12. The micromachinable substrate of Claim 8 wherein the
2 integrated circuit is a monolithic microwave integrated circuit (MMIC)

1 13. An interconnectable package comprising;
2 a micromachined substrate for housing an
3 integrated circuit wherein the micromachined substrate has at least one
4 male connection component.

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3 14. The interconnectable package of Claim 13 wherein the
4 said package further includes a micromachinable substrate for housing
5 an integrated circuit wherein the micromachined substrate has at least
6 one female component, said male component being accepted by said
7 female component of said second micromachinable substrate thereby
8 allowing interconnection between the two micromachinable substrates.
9

15. The interconnectable package of Claim 13 wherein the male component has at least one electrical connector channel wherein when a female component with at least one electrical connector channel accepts the male component, the electrical connector channels pass a signal between the female package and male package thus ensuring adequate signal transmission for high frequency devices.

1 16. The interconnectable package of Claim 13 wherein the
2 integrated circuit is fully encapsulated by the silicon substrate.

1 17. The interconnectable silicon package of Claim 13 wherein
2 the integrated circuit is a monolithic microwave integrated circuit
3 (MMIC)..

1 18. The interconnectable package of Claim 13 wherein the
2 micromachined substrate has four male connection components,
3 wherein one of said four male components extends from each side of
4 the silicon package.

1 19. The interconnectable package of Claim 13 wherein the
2 micromachined substrate has at least two male connection
3 components.

1 20. An interconnectable silicon package comprising:
2 a micromachined substrate for housing an integrated
3 circuit wherein the micromachined substrate has at least one male
4 connection component and at least one female connection component.

1 21. A method for interlocking silicon packaged circuits
2 comprising the steps of:
3 selecting a first silicon package housing an integrated
4 circuit and having a female connection member,
5 selecting a second silicon package housing an integrated
6 circuit and having a male connection member, and
7 coupling the second silicon package to the first silicon
8 package by sliding the male member into the female member thereby
9 creating a functional module for high frequency devices.

1 22. A package having interconnecting capabilities
2 comprising:

3 a silicon substrate shaped in a plug formation, said plug having
4 a trapezoidal cross section wherein the edges of said trapezoidal cross
5 section are slanted in an inward direction so that the top surface of the
6 plug is broader than the central surface which makes contact to the
7 socket.

8 a silicon substrate shaped in a socket formation, said socket
9 having a dovetail aperture wherein the edges of said dovetail aperture
10 are slanted in an inward direction;

11 wherein the plug is accepted by the socket thereby locking the
12 two substrates together when the edges of the plug are fitted to the
13 inversely slanted edges of the socket.